REMARKS

Favorable reconsideration and reexamination of this application are requested in view of the above amendments and the following remarks. Claim 1 has been cancelled without prejudice or disclaimer. Claims 2-3, 5-7, 11-12 and 14 have been amended. No new matter has been added. Claims 2-17 remain pending in the present application.

Disclosure objections

The specification is objected to because of several informalities. The specification has been amended to correct these informalities according to the Examiner's request.

Claims objections

Claims 1-3, 5, 11-12 and 14 are objected to because of editorial issues. Claim 1 has been cancelled without prejudice or disclaimer. Therefore, this objection is rendered moot with respect to this claim. The claims 1-3, 5, 11-12 and 14 have been amended to correct the informalities raised by the Examiner.

Claims rejections - 35 U.S.C 112, first paragraph

Claims 11-17 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification. Claim 11 has been amended to clearly distinguish the cover from the lid and to specify that there is only one cover. Therefore, the rejection is moot with respect to those claims. Applicants assert that the § 112 rejection is hereby traversed. Applicants do not concede the correctness of the rejection.

Claims rejections - 35 U.S.C 112, second paragraph

Claims 3-7 and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter. Claims 2, 6-7 and 11 have been amended. Therefore, the rejection is moot with respect those claims.

Applicants assert that the § 112 rejection is hereby traversed. Applicants do not concede the correctness of the rejection with respect to those claims.

Claim rejections, 35 U.S.C 102(b)

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by either Williams et al. (US 5,030,935) or Childs et al. (US 4,268,803). Claim 1 has been cancelled. Therefore, this rejection is rendered moot with respect to this claim. Applicants do not otherwise concede the correctness of the rejection.

Claims 2, 4, 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by either Yamamura (US 4,713,634) or Torkington et al. (US 5,222,294). Applicants respectively traverse this rejection.

Claim 2 requires a plate, for interrupting an unwanted higher-order mode, substantially dividing the internal space of a metal box and cutting off the propagation path for the high-frequency waves in the internal space of the metal box. By having a plate in the middle of the high-frequency circuit box, it is made possible to suppress the propagation of the electromagnetic waves in the waveguide mode generated in the space inside the box so as to prevent the deterioration of the frequency characteristic due to the excitation of the unwanted higher-order mode. Therefore, it is possible to provide a high-frequency circuit element having an excellent frequency characteristic.

Torkington et al. discloses an electronic packaging wherein the framework 12 comprises isolation wall 14 and transom 16. Torkington et al. discloses that the use of the transom 16 is critical to the design of the packaging and structurally connects the isolation wall 14 with the framework edge 17 without interacting with the electromagnetic transmission field. Furthermore, the transom 16 permits the one-piece fabrication of the isolation wall framework 12, enhancing accurate alignment with the structural baseplate 11 with which the transom mates. Torkington et al. discloses also that the transom 16 permits the design of the isolation wall

framework 12 as a structural element, which can be tailored to evenly distribute mechanical stresses. See column 3, lines 55-68.

Torkington et al. discloses a transom (plate) that is used for structural purposes only, and does not interact with the electromagnetic transmission field or suppress the unwanted higher-order mode as recited by claim 2. Thus, claim 2 is not anticipated by Torkington et al..

Regarding the second reference, Yamamura discloses a pair of projections 15 formed with a gap remaining therebetween. The pair of projections functions as a filter of the radio wave propagating within the container working as a waveguide. See column 3, lines 34-38. The pair of projections 15 reduces the width of the waveguide, whereby the cutoff frequency with respect to wave propagation is increased and an unwanted mode is suppressed. Yamamura discloses that by arranging the length between the projections 15 so that the cutoff frequency is higher than the wave frequency used in the microwave circuit, waveguide mode propagation of the wave having the frequency of the microwave circuit does not occur. With this configuration, the noise due to the wave propagation of the waveguide mode and transmission loss are minimized. See column 3, lines 53-64. However, the projection 15 is not effective against an unwanted mode with the frequency of the region higher than the cutoff frequency. On the contrary, claim 2 requires a plate that substantially divides the internal space in the metal box and cuts off the propagation path for the high-frequency waves in the internal space. Therefore, the plate can suppress the propagation of an unwanted higher-order mode more effectively than the pair of projections 15 of Yamamura. Even if it is possible to use a high frequency wave by providing an appropriate size projections 15, this is limited by the presence of the Field Effect Transistor 7 and the capacitors 8 disposed between the projections, and which limit the range of the frequencies that could be cutoff.

Claim 2 requires a plate disposed inside the metal box, interrupting the unwanted higher-mode and cutting off the propagation path for high-frequency waves in the internal space of the metal box. Yamamura discloses a housing having a limited cutoff frequency depending on the gap between the projections 15, and could not cutoff the unwanted higher-mode or the propagation path for high-frequency waves.

Thus, claim 2 is not anticipated by Yamamura.

Claims 4, 6 and 7 are rejected as being anticipated by either Yamamura or Torkington et al. As discussed above, claim 2 is patentably distinct from Yamamura and Torkington et al. Claims 4, 6 and 7 depend from claim 2, and therefore, they are patentable for at least the same reasons. Applicants are not otherwise conceding the relevance of Yamamura and Torkington et al. to the features of claims 4, 6 and 7.

Claims 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hallford et al. (US 3,638,148) or Toyoshima (JP 5-007101). Applicants respectively traverse this rejection.

Claim 11 requires a cover surrounding the input/output line of the high-frequency circuit so as to suppress the propagation of high-frequency waves. With the use of the cover, it is possible to prevent the generation of a waveguide mode, which is one of the unwanted higher-order modes that propagate through the box. Such a waveguide mode is generated due to the radiation of the electromagnetic waves excited by the conversion of the propagation mode during the transmission from the input/output terminal to the input/output line of the electronic circuit.

Hallford et al. discloses an RF microwave microstrip circuit disposed inside a shielding metal box 14 that is equipped with a lid 15. The lid has a layer of absorbing material 17 bonded to the inner side of the shield box lid 15. See column 3, lines 15-19. The lid disclosed by Hallford et al. is covering all of the electronic circuit and not only the part where the input/output coax is connected to the input/output line of the electronic circuit. Furthermore, Hallford discloses that the input/output line (coax center conductor 35) is fitted to and soldered or brazed 36 to an end of the conductor 13. See column 5, lines 18-20. Hallford et al. does not disclose the use of a cover surrounding the coax center conductor 35. The lid 15 of Hallford et al. prevents only the propagation of the electromagnetic waves outside the box.

Thus, Hallford et al. does not anticipate claim 11.

Regarding the second reference, Toyoshima discloses a package for an electronic circuit wherein a cover is used to cover the upper part of the package. The inner face of the cover is laminated with a resistance layer film which eliminates the waveguide mode created inside the package. See the Abstract. Toyoshima discloses that the input/output lines of the electronic circuit are not surrounded by a cover at the point where they are connected to semiconductor circuit 4. See Figures 1b and 4. This configuration does not suppress the propagation of high-frequency waves inside the package. The cover of Toyoshima only prevents the propagation of the electromagnetic waves outside the box.

Neither of Hallford et al. and Toyoshima discloses a cover surrounding the input/output line of a high-frequency circuit so as to suppress the propagation of high-frequency waves. Thus, claim 11 is not anticipated by Hallford et al. and Toyoshima.

Claims 12-14 depend form claim 14, and therefore, are patentable over Hallford et al. and Toyoshima for at least the same reasons. Applicants are not otherwise conceding the relevance of Hallford et al. and Toyoshima to the features of claims 12-14.

Claim rejections, 35 U.S.C 103(a)

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Yamamura or Torkington et al. in view of Buck et al. (US 5,164,358). Applicants respectively traverse this rejection.

As discussed above, claim 2 is patentably distinct from Yamamura and Torkington et al. Claims 8-10 depend from claim 2, and therefore, they are patentable for at least the same reasons. Applicants are not otherwise conceding the relevance of Yamamura and Torkington et al. in view of Buck et al. to the features of claims 8-10.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Hallford et al. or Toyoshima in view of Buck et al. (US 5,164,358). Applicants respectively traverse this rejection.

As discussed above, claim 11 is patentably distinct from Hallford et al. and Toyoshima Claims 15-17 depend from claim 11, and therefore, they are patentable for at least the same reasons. Applicants are not otherwise conceding the relevance of Hallford et al. and Toyoshima in view of Buck et al. to the features of claims 15-17.

Attached hereto is a marked-up version of the changes made to the specifications and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made**".

In view of the above, it is submitted that the application is now in condition for allowance. Reconsideration and reexamination are requested.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 371.5237.

Respectfully submitted,

MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903
(612) 332-5300

Dated: October 30, 2001

By _____
Curtis B. Hamre
Reg. No. 29,165

DPM/CBH/HB/tlp

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	OKAZAKI et al.	Examiner:	Unknown
Serial No.:	09/523,132	Group Art Unit:	2816
Filed:	March 10, 2000	Docket No.:	10873.506US01
Title:	HIGH-FREQUENCY CIRCUIT ELEMENT		

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

Please amend the paragraphs starting at page 1 on line 19 and ending at page 2 on line 7 to read as follows:

As shown in Fig. ~~Figs 7 and~~ 8, in the conventional high-frequency circuit element, λ/2 resonators 86a-, 86b, 86c, 86d of a strip conductor pattern and input/output lines 87a, 87b are formed on the surface of the substrate 85 made of dielectric monocrystal, or the like. The high-frequency circuit having a microstrip structure is fabricated from λ/2 resonators 86a-, 86b, 86c, 86d, input/output lines 87a, 87b and a ground plane 88. This high-frequency circuit includes four coupled λ/2 resonators and functions as a four-stage band pass filter.

The box of the high-frequency circuit element is formed of a conductor material and includes, as shown in Fig. 8, a box frame 82(also see Fig. 7) and a box bottom 83(also see Fig. 7). A substrate 85(see Fig. 7) is fixed to the box bottom 83 with, for example, conductive adhesives so that the box is electrically connected to the ground plane 88.

On the side face of the box frame 82, input/output terminals 84a, 84b(also see Fig. 7) having a coaxial connector are placed. Inner conductors of the input/output terminals 84a, 84b are electrically connected to the input/output lines 87a, 87b and outer conductors of the input/output terminals 84a, 84b are electrically connected to the box, respectively.

Figs 9 and 10 respectively show another example of a conventional high-frequency circuit element using a strip conductor pattern. Also in Fig. 97, a box lid 81 shown in Fig. 10 is omitted so that the internal structure of the box of the high-frequency circuit element can be seen. In the configuration shown in Fig. ~~Figs 9 and~~ 10, eight hairpin resonators 89a-, 89b, 89c, 89d, 89e, 89f, 89g, 86h are used so as to form an eight-stage band pass filter. The structure of the other parts is the same as the conventional high-frequency circuit element shown in Figs 7 and 8 and will not be further described.

Please amend the paragraphs of page 7 starting on line 20 and ending on line 31 to read as follows:

As shown in Fig. ~~Figs 1 and~~ 2, in a high-frequency circuit element of this embodiment, hairpin resonators 16a-~~,~~16b, 16c, 16d, 16e, 16f, 16g, 16h of a strip conductor pattern and input/output lines 17a, 17b are formed on the surface of the substrate 15 made of a dielectric monocrystal, or the like. The high-frequency circuit having a microstrip structure is fabricated from these hairpin resonators 16a-~~,~~16b, 16c, 16d, 16e, 16f, 16g, 16h, input/output lines 17a, 17b and a ground plane 18. This high-frequency circuit includes eight coupled hairpin resonators and functions as an eight-stage band pass filter.

Please amend the paragraphs of page 8 starting on line 6 and ending on line 11 to read as follows:

Furthermore, as shown in Figs. 1 and 2 the high-frequency circuit element of this embodiment has plates 1a-, 1b, 1c for interrupting an unwanted higher-order mode made of a conductor material. The plates 1a-, 1b, 1c are fixed to the box frame 12 with, for example, conductive adhesives so as to be electrically connected to the box. Thus, the plates cut off a propagation path for high-frequency waves by approximately or substantially dividing the internal space of the box.

IN THE CLAIMS

Please cancel claim 1 without prejudice or disclaimer.

Please amend claims 2-3, 5-7, 11-12 and 14 to read as follows:

2. (Amended) A high-frequency circuit element comprising:

a substrate,

a high-frequency circuit ~~formed~~ disposed on said substrate,

a metal box electromagnetically shielding said high-frequency circuit by enclosing said substrate there within,

an input/output terminal placed on said metal box and inputting/outputting a high-frequency signal to/from said high-frequency circuit, and

~~at least one~~ a plate, for interrupting an unwanted high-order mode, substantially dividing an internal space in said metal box and cutting off the propagation path for the high-frequency waves in the internal space of said metal box.

3. (Amended) The high-frequency circuit element according to claim 2, wherein said plate for interrupting an unwanted higher-order mode ~~is made of~~ comprises a conductor.

5. (Amended) The high-frequency circuit element according to claim 2, wherein said plate for interrupting an unwanted higher-order mode ~~is made of~~ comprises a dielectric having a high dielectric constant.

6. (Amended) The high-frequency circuit element according to claim 2, wherein said plate for interrupting an unwanted higher-order mode is placed spanning over and approximately perpendicular to at least one input/output line of said high-frequency circuit and placed so that ~~it~~ said plate is not in an electric contact with said input/output line.

7. (Amended) The high-frequency circuit element according to claim 6, wherein said plate for interrupting an unwanted higher-order mode has a cut-out so that ~~it~~ said plate is not in an electric contact with said high-frequency circuit.

11. (Amended) A high-frequency circuit element comprising:

a substrate,

a high-frequency circuit ~~formed~~ disposed on said substrate,

a metal box electromagnetically shielding said high-frequency circuit by enclosing said substrate there within,

an input/output terminal placed on said metal box and inputting/outputting a high-frequency signal to/from said high-frequency circuit, and

~~at least one~~ a cover, for interrupting an unwanted high-order mode, ~~covering at least one~~ surrounding an input/output line of said high-frequency circuit ~~in~~ within an internal space of said metal box~~, and suppressing~~ so as to suppress the propagation of high-frequency waves.

12. (Amended) The high-frequency circuit element according to claim 2, wherein said cover for interrupting an unwanted higher-order mode ~~is made of~~ comprises a conductor.

14. (Amended) The high-frequency circuit element according to claim 11, wherein said cover for interrupting an unwanted higher-order mode ~~is made of~~ comprises a dielectric having a high dielectric constant.